DOCUMENT RESUME

ED 104 347 IR 001 736

TITLE	Selected Readings on Information for Industry. FID 518.
INSTITUTION	International Federation for Documentation, The Hague (Netherlands).
PUB DATE	74
NOTE	50p.
AVAILABLE FROM	International Federation for Documentation (FID), 7 Hofweg, The Hague, Netherlands
EDRS PRICE	MF-$0.76 HC Not Available from EDRS..PLUS POSTAGE
DESCRIPTORS	*Annotated Bibliographies; Bibliographies; Communication (Thought Transfer); *Communication Problems; *Industry; Information Dissemination; Information Scientists; *Information Services; Information Utilization; *Management; Management Development; Public Relations; Staff Improvement
IDENTIFIERS	FID II; *Information Flow; International Federation for Documentation

ABSTRACT

A list of carefully selected readings on ways to organize the information flow within a company, this bibliography presents 68 annotated references to literature illustrating the problems of putting information across to industry and establishing information services within industrial firms. The publication is primarily aimed at the information staff in industrially-oriented information services, information officers in industry, and industrial managers already interested in the topic. There are four sections: (1) papers and articles appearing in periodicals, (2) individual papers and proceedings, (3) books and reports, and (4) handbooks. An author index and subject index conclude the bibliography. (KKC)

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FID STUDY COMMITTEE
"INFORMATION FOR INDUSTRY" (FID/II)

SELECTED READINGS ON INFORMATION FOR INDUSTRY

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Preface

This publication by the FID/II Study Committee "Information for Industry" is a spin-off from a project which FID/II has been working on for some years.

FID/II members consider the flow and utilization of information to be a management discipline. This attitude led to the formulation of the project

> "Means of motivating management for planned communication with external sources of knowledge and for planned flow of information within the firm".

As it proved difficult to find management training institutes dealing with this topic, we identified many papers, articles and books which the members had found to be of value when organizing for effective communication of information.

A list of *carefully selected readings* was established. This list *does not pretend to be exhaustive;* it is characterized by restrictions of the criteria used in evaluating readings that can inspire managers to improve the competence of the staff and the effectiveness of the enterprise by organizing the information flow to and within the company.

The restrictions are: Reference is given to items stressing the effect of successful communication leading to practical results. References are not given to documentation as such or to documentation systems, even when such systems are tailored to serve industry.

It is our hope that this publication – containing references with evaluative digests – will be of inspiration and of value to managers and information officers.

Kjeld Klintøe
Chairman of FID/II

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Editorial Comments

This publication presents 68 references to literature illustrating the problems of putting information across to industry and establishing information services within industrial firms.

The publication will, it is hoped, be of interest to all concerned with information for industry and is primarily aimed at

- information staff in industrially oriented information services
- information officers in industry
- industrial managers already interested in the topic.

Each item is headed by the title in order to catch the interest of the reader. The short digest following the bibliographical details does not attempt to give a review of the whole article but concentrates on those points that contain ideas, arguments, and attitudes.

No doubt, the vast majority of literature on the subject is available in English. This fact – together with practical considerations – is the reason that only English language literature is covered by this first edition. Literature in other languages may be included in future editions with the assistance of committee members representing these language areas.

Members of Study Committee FID/II have contributed with suggestions for inclusion of items. Thanks go especially to Mr. F. G. Halang of Canada, Mr. Bart E. Holm of the United States, and Dr. R. van Houten of South Africa, for many valuable comments of both technical and linguistic nature.

It is hoped that suggestions for items to be included in the next edition will be currently received from members of FID/II.

Torben Hvidegaard
Editor

SECTION I

Papers and Articles Appearing in Periodicals

1

THE SCOPE OF INFORMATION WORK IN INDUSTRY, *Smith, A. R. (Aslib Course, 1954). Aslib Proceedings, vol. 6, no. 3, August 1954, p. 159-168.*

Technical information is not the only type of information of interest to a company. The most important non-technical information units deal with -

- commercial and industrial information
- economic information
- statistics (external and internal)

There are many differences between technical and other types of information work:

- the sources of non-technical information are far more diverse and not so well organized
- non-technical information is more rapidly outdated
- non-technical information units go deeper into the interpretation and application of the information they collect.

2

TECHNICAL INFORMATION IN INDUSTRY: HOW IT IS HANDLED, *Slade, I. M. (Bisra Conference, Scarborough, 1959). Aslib Proceedings, vol. 11, no. 12, December 1959, p. 313-317.*

Many companies do not get a good service from their information section, mainly for two reasons.

Firstly, there is a long tradition of giving passive service. Instead of waiting to be asked, the information officer should anticipate his customers' needs, and instead of referring to some article he should point out available specialists who know the latest developments in the subject field. A thorough knowledge of his company's organization, policy and plans is necessary for an information officer to be active.

Secondly, information work has not adjusted itself to the increasing speed of technological advance. It is necessary to sort out from the mass of literature the items relevant to a problem. One of the most important sources of information is, however, not what is in a library but what is in people's heads. Information people should turn some of the energy now spent on abstracting and literature searching towards helping their customers in the way they want to be helped.

3

AN INDUSTRIAL INFORMATION SERVICE: THE EFFECTS OF GROWTH ON ITS ORGANIZATION AND ADMINISTRATION, *Arnold, D. V. (Aslib Conference, Cranfield, 1964). Aslib Proceedings, vol. 16, no. 8, August 1964, p. 234-245.*

Industrial information services often start as technical libraries. Very soon a specialized (and active) information function is added. The problem now arises of getting the professional librarians and the technically qualified information scientists to cooperate. Their functions are complementary and equally necessary. Neither of them will, however, be able to give of their best unless the basic clerical activity is properly staffed and organized.

Growth may have some disadvantages such as slower service, greater demands on the lending function, and fewer people using the service personally. The latter statement, however, does not apply to the pure scientist for whom a first-class reference library is more valuable than a positive information function.

4

PUBLIC RELATIONS: HOW TO CREATE MUTUAL UNDERSTANDING BETWEEN AN INDUSTRIAL INFORMATION SERVICE AND ITS CLIENTELE, *Hindson, R. (Aslib Conference, 1965). Aslib Proceedings, vol. 17, no. 9, September 1965, p. 260-268.*

It is vital to an industrial information service to regard its clientele as individuals rather than members of various groups. It is the aim of public relations to create a mutual understanding between the individuals in the information service and the individual clients.

The first stage of P. R. activities is an examination of company policies and organization. Many information officers here concentrate on the technical and scientific activities and forget the commercial side of the company.

A written plan is essential to ensure proper discussion.

Good timing is the essence of P. R. It is also important that the media used are attractive and correspond to the style of the company.

5

THE MANAGEMENT ATTITUDE TO INFORMATION, *Dunn, S. C. (Aslib Electronics Group, 1965). Aslib Proceedings, vol. 17, no. 10, October 1965, p. 286-296.*

Management in a company looks upon information as upon money. It is not only an obvious asset but is most useful when put to work. An information system may be judged according to its ability to carry information to decision makers. The vertical organizational structure seldom creates problems for the channelling of information, but the horizontal structure is often poorly defined. A symptom of this is the emergence of liaison engineers.

One of the tasks of management is to put those who know in touch with those who need to know. Sometimes, however, vital facts are in the hands of those who are unaware of their significance. It also takes time to reduce information to a communicable form.

Computers are very suitable for processing data on formulated demands, but what constitutes information is decided by men who know the objectives of the company.

6

THE INFORMATION REQUIREMENTS OF INDUSTRIAL MARKETING RESEARCH, *Maclean, Ian, (Aslib Conference, 1965). Aslib Proceedings, vol. 17, no. 11, November 1965, p. 308-318.*

Industrial marketing research comprises an investigation and analysis of the market and the presentation of the information to management in such a form that policy decisions can be made.

A market survey normally includes the following points: market size, market structure, market trends, market share, and detailed information on individual customers and competitors.

Primary information is obtained either by personal visits, telephone interviews, or by postal questionnaires.

Secondary (published) information is absolutely necessary when determining the firms to be visited and also essential during the preparation of the questionnaire.

It is very important that interviewers are experienced and well-briefed.

7

INFORMATION STAFF, *Farradane, J. E. L., (Aslib Conference, 1965). Aslib Proceedings, vol. 18, no. 1, January 1966, p. 20-22.*

An information scientist should have the following qualifications:

- be a graduate in science or engineering
- have wide interests
- have adequate subject knowledge
- be eager to learn
- know foreign languages
- be able to speak and write well
- be a good mixer and able to maintain good relations
- have considerable tact (he will have to draw out of a questioner what it is he really wants to know).

Training on the job is no longer adequate. The information scientist ought to go through a one-year, full-time postgraduate course or the equivalent evening course.

The scope of information science should be taught in management courses, so that management would be made aware of the possibilities of information work and organize accordingly.

8

HANDLING INDUSTRIAL (SCIENTIFIC AND TECHNICAL) CONFIDENTIAL REPORT MATERIAL, *Gerrard, S. A. and Lyle, D. F. (Aslib Conference, 1966). Aslib Proceedings, vol. 18, no. 8, August 1966, p. 206-214.*

The Report Centre of ICI Mond Division deals with internal company information only, whereas published reports (e. g. of research associations and government departments) are handled by the libraries. This separation is partly deliberate, based on security and use pattern.

For management of the report centre and for functions such as indexing, abstracting and searching the centre employs scientific staff with company experience. The information officers of the centre spend half their time on inquiry work in direct personal contact with the user.

The security grading of a report is dependent on the patent situation, commercial policy, liaison with other companies etc.

9

CONTROL OF COMMERCIALLY CONFIDENTIAL INFORMATION IN REPORTS, *Jermy, K. E. (Aslib Conference, 1966). Aslib Proceedings, vol. 18, no. 8, August 1966, p. 218-225.*

A research and development organization wishes to issue as many open publications as possible

- to uphold its own prestige
- in the hope that publication of results will bring a reverse flow of ideas from others.

On the other hand there are reasons for wishing a limitation of the distribution:

- to protect concepts which later may become patentable
- to give the first benefit of the results to collaborating organizations or subscribers
- to safeguard third-party information.

In large organizations the distribution is normally decided by a special committee, and not by the author. Systems of marking documents should be clear to anybody reading them.

10

INDUSTRIAL INFORMATION DEPARTMENTS, *Colinese, P. E. Journal of Documentation, vol. 22, no. 4, December 1966, p. 305-311.*

Industrial information services may undertake:

- traditional library operations requiring staff to handle *documents*
- information searching requiring searchers who are competent to assess the significance of *documents or information*
- the presentation of *information* so that it makes an impact on the receiver.

Among the educational problems may be mentioned the need for:

- special librarians who have qualified in science, engineering or economics
- science and engineering graduates with formal training in information work
- information staff competent in foreign languages.

The effectiveness of information services would be increased if more senior information staff appreciated the role of their services as a management aid.

11

INDUSTRIAL TECHNICAL INTELLIGENCE, *Sorrows, H. E., Research Management, vol. X, no. 4, July 1967, p. 217-227.*

Organized industrial technical intelligence is essential to high-technology companies. It is critically important that this activity is carefully staffed. The personnel must

- know the company objectives
- have the support of management
- be capable of analyzing
- have sound economic judgement
- participate in company planning
- take part in relevant professional activities.

In general, staff assignments should be of a rather short duration enabling the service to get new talent, ideas, and contacts.

Practical problems are the creation of the environment and communication channels for company-wide participation.

12

INFORMATION ANALYSIS CENTERS AS A SOURCE FOR INFORMATION AND DATA. *Darby, Ralph L., Special Libraries, vol. 59, no. 2, February 1968, p. 91-97.*

Information Analysis Centers (IAC's) serve to integrate the technical community into the information transfer network as recommended in the Weinberg Report. They provide specialized services for the use of a specialized audience, the main differences between the IAC's and the traditional libraries and information centers being the following:

- the IAC is highly selective in acquisition in terms of subject coverage, but employs a wider range of types of information sources
- the products of the IAC are technical answers to inquiries, data compilations, monographs, state-of-the-art reports rather than bibliographies, abstracts, or indexes
- in the IAC the contact with the users is undertaken by technical specialists. The discussion is of a technical nature with possibilities of feedback to the center.

13

INFORMATION, *Keegan, Warren, J., Incentive, no. 11, August 1968, p. 11-13.*

Interviews with 50 top executives in the U.S.A. showed that human beings provided 67 per cent of all important information acquired by the executives. Three-quarters of this information from human sources was gained in face-to-face conversations, which is important for several reasons:

- some information is too sensitive to be transmitted in another way
- the information may be too uncertain to be committed to writing
- personal contact permits communication for some length of time and in some depth
- face-to-face contact makes possible many forms of communication which cannot be expressed in writing.

The importance of information from human sources implies that executives should give more thought to what people they see and realize that it is often necessary to repay information with other information.

14

INFORMATION SERVICES AND MARKET RESEARCH, *Hill, D. W. (ECMRA Conference, 1968). Aslib Proceedings, vol. 21, no. 2, February 1969, p. 59-63.*

Market research is an interdisciplinary activity and must draw upon a wide diversity of information, much of which may be uncodified and not necessarily in the form required, having been produced for some other purpose.

A distinction is made between technical information and more general information. The former includes statistics and technological knowledge and is usually codified. The latter which includes e. g. local customs and preferences, is much harder to locate and may involve consultations and correspondence with experts.

The research associations may be useful information sources since they possess expertise by which the information can be evaluated, and furthermore they have established access both to sources of information and to potential users.

15

SOURCES OF INFORMATION ON MARKET RESEARCH USED BY INDUSTRIAL LIAISON CENTRES TO ASSIST SMALL FIRMS, *Lees, R. (ECMRA Conference, 1968). Aslib Proceedings, vol. 21, no. 2, February 1969, p. 64-70.*

The functions of the Industrial Liaison Officers (ILO's) operating in U.K. are to visit smaller firms in order to:

- assist them in overcoming particular problems by directing them to the most suitable source of assistance
- promote an appreciation of new technological and managerial methods
- encourage the use of local and national advisory sources.

The ILO's also assist with marketing problems, and this is where the medium-sized companies have made the most effective use of the service. The ILO does not attempt to study the problem in depth but questions the firm to determine the true nature of the problem.

16

COLLECTION AND UTILIZATION OF ECONOMIC INFORMATION – SOME OF ITS PROBLEMS, *Handovsky, F. L. A. (ECMRA Conference, 1968). Aslib Proceedings, vol. 21, no. 2, February 1969, p. 71-74.*

Economic information is now receiving increased attention; more information is being published, and sources of this information are becoming better known in industry. It is, however, still considered by some to be a highly sensitive area, although the distinction between data commonly made available and data remaining company property also exists in scientific and technical information.

The information centre of Esso Chemical SA collects data on products, branches of industry, competitors, economic and political factors, etc. One of the problems encountered is to get the sales people to pass on their information to the centre. The problem is overcome by frequent personal contacts.

17

INFORMATION IN MARKET RESEARCH, *Hutchesson, B. N. P. (ECMRA Conference, 1968). Aslib Proceedings, vol. 21, no. 2, February 1969, p. 75-78.*

Industrial market research normally involves "end-use analysis" in which one establishes the actual or potential end-uses and explores them by field work.

Before paying visits it is important to be thoroughly informed. The field officer can then ask more perceptive questions, and he will be able to appraise facts as they are presented to him and raise supplementary queries if they don't fit. The quality of the information officer is revealed in his ability to have available in advance the best review articles on uses of materials and the relevant technological factors.

18

COMMUNICATION NETWORKS IN R & D LABORATORIES, *Allen, Thomas J., R&D Management, vol. 1, no. 1, January 1970, p. 14-21.*

Studies of project members show that high performers

- have far more consultations with organizational colleagues
- are the only ones who have real contact outside their specialty.

There exists in an organization a small number of key persons, "technological gatekeepers", upon whom others rely heavily for information. The gatekeepers read far more, have more contacts outside the organization, and communicate closely among themselves. New information is brought into the organization through the gatekeeper, from where it is communicated to other gatekeepers and organization members. This communication system develops spontaneously.

19

COMMERCIAL INFORMATION, *Henderson, G. P. (Aslib Meeting, 1970). Aslib Proceedings, vol. 22, no. 4, April 1970, p. 135-142.*

The paper lists a number of documentary sources of commercial information, divided into three categories:

1. Information about other companies e.g. location and identification of suppliers, buyers, trade-names and specific business opportunities, and evaluation of these companies regarding ownership, share of market, credit information etc.
2. Information about the environment, including market research, and
3. Information needed to solve routine problems concerning transportation, taxation, customs regulations etc.

Commercial information is not as systematically indexed as scientific and technical information and is furthermore often published to serve the practical needs of one class of business user only.

20

THE PROBLEM OF INFORMATION EXCHANGE AND THE COMPLETE INFORMATION CENTRE CONCEPT, *Davies J. R., The Information Scientist, June 1970, p. 39-45.*

The problem of information exchange has two parts:

- communication channels, where it seems that communication is more successful at policymaking level than at operational level
- recorded information, where we are reasonably successful in capturing and disseminating information contained in the formal literature. Non-conventional information is, however, often the most current and expresses the "here and now" problem.

The information centre should be dynamic, concentrate on individual requirements, and be staffed by information specialists/scientists.

21

THE PILKINGTON TECHNICAL COMMUNICATIONS SYSTEM. A FORMALIZATION OF THE ROLE OF THE "TECHNOLOGICAL GATE KEEPER", *Yates, Bryan. Aslib Proceedings, vol. 22, no. 10, October 1970, p. 507-510.*

The Pilkington Organization has formalized the idea of "technological gatekeepers", i. e. persons who are usually consulted by colleagues for information and who effect the transfer of information from outside into the organization.

Technical areas of interest to the company were identified and a gatekeeper, termed "Contact", placed in each one. A person chosen for Contact should

- be a technical expert in his field
- be approachable and co-operative.

The Contact shall provide complete, accurate and up-to-date information. The enquirer does not have to use the Contact if he knows someone else in the organization he wishes to consult.

22

THE INTERNATIONAL TECHNOLOGICAL GATEKEEPER, *Allen, Thomas J., Piepmeier, James M., and Cooney, S. Technology Review, March 1971, p. 36-43.*

Investigations have demonstrated the existence of the international technological gatekeeper who acts as a mediator in the technology transfer process among nations. He has similar characteristics as the organizational technological gatekeeper:

- he is within his own organization a "communication star"
- he reads many journals
- he has many contacts abroad
- he is a high performer.

International gatekeepers constitute an effective way for a country to import technological information. They may be created by assisting able, domestically educated research personnel to do research abroad.

23

COST ANALYSIS OF A TECHNICAL INFORMATION UNIT, *Klintoe, Kjeld (Aslib Conference, INFOCHEM '70s, University of Surrey, 1971). Aslib Proceedings, vol. 23, no. 7, July 1971, p. 362-371.*

An information service may occasionally, with help from the client, be able to prove the monetary value of a given assistance. But generally it will have to analyze its accomplishments in relation to the time and money allocated.

DTO, Danish Technical Information Service, has introduced such a cost analysis scheme which shows cost per visit, cost per piece of information, cost per receiver, distribution of clients as to geography and line of business, etc.

The analysis is made quarterly and has the benefit of helping the staff identify their contributions and making them cost-minded, and of forming th basis of internal and external discussions of working programmes and policies.

24

PROJECT MANAGEMENT AND COMMUNICATION PATTERNS IN INDUSTRIAL RESEARCH, *Walsh, V. M. and Baker, A. G. R & D Management, vol. 2, no. 3, August 1972, p. 103-109.*

A pilot study of communication patterns in a single project team showed that

- those who were "high communicators" did not play the role of "technological gatekeepers", i.e. channelling information from outside into the laboratory,
- the amount of communication between team members was not influenced by geographical distance,
- the bulk of communication relevant to the project took place at project meetings,
- overall project strategy was the most discussed topic at meetings,
- communication activity did not vary with the status of the individual but was determined by the nature of the project.

The pilot study seems to contradict the findings of T. J. Allen, but it must be noted that the people involved with the project were operating very definitely as a team and that the project was planned in detail.

25

MANPOWER IMPLICATIONS, SKILLS REQUIRED TO SELECT, INTERACT WITH AND EXPLOIT EXTERNAL SERVICES TO FIT THE USER'S NEEDS, *Rippon, John S. (Aslib Conference, 1972). Aslib Proceedings vol. 25, no. 2, February 1973, p. 65-76.*

Two types of external services are particularly attractive to the user because they demand a minimum of effort:

- data-compiling services assembling facts or numerical values,
- consultant organizations providing technical or economic surveys.

The industrial user is more reserved towards external services requiring skill in indexing and classification techniques.

External services should

- be easy to use
- give a rapid response
- produce a reasonable number of useful references.

26

INFORMATION FLOW AND INDUSTRIAL INNOVATION, *Robertson, Andrew (Aslib Meeting, 1973). Industrial Innovation, vol. 25, no. 4, April 1973, p. 130-139.*

The Sappho Project is a study of what makes industrial innovations successful. It was found that successful innovators

- have a better understanding of user needs
- do thorough market research
- carry out a more efficient development work
- make more effective use of outside technological and scientific advice
- have better contacts with the outside scientific community in the specific area concerned and not merely in a general way.

27

JUSTIFICATION OF INFORMATION SERVICES, *Gee, R. D. (Conference on Promoting Industrial Library and Information Services, London, 1973). Aslib Proceedings, vol. 25, no. 10, October 1973, p. 354-363.*

Since managers seem to have a preference for external information services, it is necessary that internal information services attach importance to advertising their services.

Promotion within the firm may be fruitless since the information service will often have to compete for budgets with management service functions like accounting, data processing, or purchasing whose objectives are short-term.

In many cases management discovers the reputation of its own information officers from outside sources. Information officers should, therefore, be prepared to sell themselves outside the company, e.g. through articles in the trade press.

28

INFORMATION SERVICES IN INDUSTRY, THE FUTURE PROSPECTS, *Burrows, B. C. (Conference on Promoting Industrial Library and Information Services, London, 1973). Aslib Proceedings, vol. 25, no. 10, October 1973, p. 364-374.*

An industrial company generates the following types of information

- accounts
- production and sales
- stocks
- marketing
- patents
- research and development.

The first three types are linked by the systems analyst into a "management information system".

What is needed is a Director of Management Services also comprising the functions of the information officer/librarian who can offer to

- preserve information that would otherwise be lost e.g. organizing files of company reports,
- influence the systems analyst on indexing techniques,
- act as a liaison officer.

29

PUBLICITY OR SELLING THE INFORMATION SERVICE, *Jackson, A. R. Haygarth (Aslib Conference, 1973). Aslib Proceedings, vol. 25, no. 10, October 1973, p. 385-389.*

Information services have no meaning unless they are used, so they have to be sold to the users.

Users must be told again and again where and how the service can be contacted. Introductory courses or simple guides are useful means of informing users of what the information service can do for them.

Once having aroused the interest of the users, the service should continue to advertise in order to hold its position e.g. through newsletters or notice-boards.

Advertising should also be used where new techniques and presentation forms are introduced in order to improve the service or its cost-effectiveness.

30

FUNDAMENTAL PROBLEMS OF INFORMATION TRANSFER, *Pearson, A. W. (Aslib Conference, 1973). Aslib Proceedings, vol. 25, no. 11, November 1973, p. 415-424.*

Recent studies show that geographical distance between researchers can influence informal communications but that formal communications may be established over long distances when people have common goals and interests.

Non-specific information is often more valuable in the problem solving process than that which is most likely to be available or to be requested by the individual.

The value of information is not a constant but depends very much upon the personality of the receiver, the state of his activities, and the state of his organization.

31

INFORMATION TRANSFER IN THE INDUSTRIAL ENVIRONMENT – THE REQUIREMENTS OF INDUSTRY, *Rowe, David (Aslib Conference, 1973). Aslib Proceedings, vol. 25, no. 11, November 1973, p. 425-429.*

From a businessman's point of view there is a fundamental difference between the information needs of scientists and businessmen. Most of the information a manager requires comes from his accountants, his salesmen and the newspapers.

The information officer is seen primarily as a supplier of information to other intellectual workers for further processing. It is important, however, that he works in close collaboration with the marketing department.

Businessmen expect an information officer to

- clarify their intentions
- understand the nature of the business
- produce a fast response.

32

THE PLACE OF THE INFORMATION SERVICE WITHIN THE ORGANIZATIONAL STRUCTURE, *Yates, B. (Aslib Conference, 1973). Aslib Proceedings, vol. 25, no. 11, November 1973, p. 430-444.*

An information unit must be part of the total information system of the company. This will enable it to be informed about company plans and thus place it in a position to anticipate the needs for information.

The information unit should have an identity or status at all levels in the company. Enquiries should be graded according to the market value of the answer to the company.

The unit should be in contact with decision-making committees and with individuals able to act as "gatekeepers".

The unit must establish good relations with management involving discussions of its needs.

SECTION II

Individual Papers and Proceedings

33

HOW TO INTEREST TECHNICALLY TRAINED PROFESSIONALS IN INFORMATION CENTER WORK, *Runck, J., Paper (p. 154-159) in Proceedings from Symposium on "Materials Information Retrieval", Dayton, 1962. AF Materials Laboratory, US Air Force, 1963, 159 p. (ASD-TDR-63-445) (AD 407609).*

Technically trained people should be involved in the work of the information center so that two prominent objectives can be reached, i.e. a random access file and state-of-the-art reports.

The following conditions are necessary to make engineers interested in information center work:

- they should spend part of their time in information activities. This will assist them in attaining present objectives.
- they should remain active workers in their field of interest so that they can retain their technical authority
- they must feel that there is a real need for their services.

34

SYSTEMATIC DISSEMINATION OF INFORMATION: ORGANIZATION AND COSTING, *Rippon, J. S., Paper (p. 41-49) in Proceedings of the Second Conference, Jesus College, Oxford, 1966. London, Institute of Information Scientists, 1968, 84 p.*

The information scientist must know the needs of the users and should, therefore, spend part of his time working with research or project teams, attending project meetings and serving as secretary.

In large organizations the problem of keeping in touch with the users may be overcome by

- dividing the work of the information team according to subject rather than by function
- setting up local information units
- regular visits to branches by information staff at the central unit
- encouraging branches to nominate a local representative to cooperate with the central service.

Finding a relationship between costs and value of any method of dissemination is hardly possible, but costs should nevertheless be measured for budgeting purposes.

35

KEEPING IN TOUCH WITH THE NEEDS OF INFORMATION USERS, *Colinese, P. E., Paper (p. 63-68) in Proceedings of the Second Conference, Jesus College, Oxford, 1966. London, Institute of Information Scientists, 1968, 84 p.*

Needs are not static and may be widely different from "wants". The good information scientist is able to detect the real need of the user by questionning him.

In order to be informed about the changing needs of the users, the information staff should

- get access at the highest level to information on likely changes in the organization
- attend senior level committee meetings preferably as committee secretaries
- know the programme and plans of the R&D department
- detect new branches of science by spotting increasing numbers of references in the literature
- make regular visits within the organization preferably in connection with definite tasks.

36

THE DIFFERENTIAL PERFORMANCE OF INFORMATION CHANNELS IN THE TRANSFER OF TECHNOLOGY, *Allen, Thomas J., Chapter 9 (p. 137-154) in "Factors in the Transfer of Technology", Gruber, William H. and Marquis, Donald G., ed. (MIT Conference, Endicott House, 1966). Cambridge, Mass., M.I.T. Press, 1969, 289 p.*

A study of the relative performance of six channels in transferring information showed

- that customers and suppliers were the channels most frequently used by engineers, (they were not used at all by scientists)
- that literature was the most used channel for scientists.

The most important finding is, however, that the greatest number of acceptable ideas were not provided by the channels used most frequently but for engineers by company staff, company projects, and external sources, and for scientists by external sources.

27

37

POLICY PLANNING FOR TECHNICAL INFORMATION IN INDUSTRY, *Wooster, Harold (FID/DC Symposium on Documentation Planning in Developing Countries, Bad Godesberg, 1967). Paper. Arlington, Va., Air Force Office of Scientific Research, 1967, 16 p. (AFOSR 67-2588) (AD 661589).*

The man who is hired to set up an information service in an industrial company has the responsibilities of

- finding out what products the company makes and is planning to make,
- acting as the organizational memory taking care that project reports, engineering drawings etc. are collected and filed,
- making decisions on how to split his resources between the buying of information and the hiring of people.

An important part of the budget should go towards buying books in consultation with the users.

38

INDUSTRIAL INFORMATION; INDUSTRIALIZATION OF DEVELOPING COUNTRIES: PROBLEMS AND PROSPECTS, *based on Proceedings of the International Symposium on Industrial Development, Athens, 1967. New York, United Nations, 1969, 56 p. (UNIDO Monograph No. 13).*

Among the recommendations of the symposium were:

- UNIDO should, in cooperation with other agencies, consider the establishment of an international clearing-house for industrial information
- Developing and advanced countries should join in the exchange of industrial information
- Developing countries should make increased use of industrial extension services
- UNIDO should consider the compilation of comprehensive documentation in fields directly related to industrial development, e. g. sources of industrial information, feasibility studies, and directories for the supply of industrial equipment.

39

INCREASING THE EFFECTIVENESS OF R & D BY EXPLOITING TECHNICAL INFORMATION, *Cole, P. F., Paper (p. 105-113) in Sira Conference on "Innovation for Profit", Eastbourne, 1968. London, Hilger, 1968, 206 p.*

The two most important functions of a technical information service are

- to stimulate research ideas
- to guard against unintentional duplication of research.

The actual level of duplication in R & D seems to lie within the range 1-9 per cent according to two British and two American estimates. If the amount of duplication could be halved at a national scale, it would be possible to finance a doubling in the present level of information support.

As to stimulation of research ideas an investigation shows that the percentage of projects stimulated increases progressively with level of literature searching effort.

40

COMMUNICATION OF SCIENTIFIC AND TECHNICAL INFORMATION FOR INDUSTRY, *digested report, FID/II Symposium, Rome, 1969. Copenhagen, FID/II, (1970), 72 p. (FID 463).*

Among the papers presented at the symposium, 29 were selected and digested. They are presented in the above report grouped in the following chapters:

1. Information and the enterprise
2. Users of information
3. Information activities at the national level
4. International cooperation in the field of information

(The next four items constitute separate entries of four of the papers. The above report is, however, included here since it gives fairly elaborate digests of other good papers).

41

THE INDUSTRIAL INFORMATION SPECIALIST AS A MEDIATOR IN THE INFORMATION TRANSFER PROCESS, *Rippon, John S. (FID/II Symposium, Rome, 1969). Paper A.3. (13), Prague, UTEIN, 1968, 14 p.*

A mediator between the information sources and the user is needed for many reasons:

- to assist the user in constructing an interest profile (when subscribing to an SDI-service)
- to formulate the request and extract the required information from the answer
- to trace useful but unasked-for information understanding the reasons behind the user's request for information
- to take care of the local information unit.

The information specialist should be active and in touch with the current thinking of those he serves.

42

SCIENTIFIC AND TECHNICAL INFORMATION FOR INDUSTRY, *van Houten, R. (FID/II Symposium, Rome, 1969) Paper C. 0. (12), Prague, UTEIN, 1968, 25 p. Addendum C. 0. (26), Prague, UTEIN, 1969, 5 p.*

The need of the firm for technical information has the following aspects:

- the nature of the required information
- the transfer of information to the firm (source, channel, medium and level of reception)
- the processing of information within the firm
- the contact between the firm and public information services (depends on the character of the firm, the level of the contact, and the type of staff in the public service)
- the categories of information sources.

The technical information activities comprise:

- question and answer services
- field extension services
- documentation services
- industrial engineering services.

30

43

SCIENTIFIC AND TECHNICAL INFORMATION AT ENTERPRISE LEVEL, *Klintøe, Kjeld (FID/II Symposium, Rome, 1969). Paper D. 0. (16), Prague, UTEIN, 1968, 9 p.*

An enterprise must state an information policy which

- defines the objectives of the enterprise
- describes the nature of the information wanted
- describes the organization of the internal information service.

The information service should be centralized and active, with participation of staff members, and attached to top management.

Both verbal and written information should be procured and filed, but for reasons of time and costs it is necessary to restrict the procurement of material.

The participation of the staff in the evaluation and selection of information should be organized in groups of staff members which meet regularly in order to discuss their findings.

44

SCIENTIFIC AND TECHNICAL INFORMATION SERVICES – SIGNIFICANT PARTS OF THE ENTERPRISE STRUCTURE, *Holm, B. E. (FID/II Symposium, Rome, 1969). Paper D.1 (21), Prague, UTEIN, 1968, 7 p.*

Information services must realize the diversity in the user's need and behaviour:

- the research man receives information from literature and personal contacts, especially with colleagues from outside; he publishes regularly.
- the technical man obtains information from colleagues in the company and from internal files; he seldom publishes.
- the marketing man needs data and information on such subjects as demography, competitors, and pricing factors; his product tends to be an internal report.

Information activities should begin by serving local needs with local services. As these grow and begin to overlap, a combination of local and centralized services may gradually be established.

45

ON-GOING INDUSTRIAL COMMUNICATION SERVICES, INFORMATION AS A SALEABLE COMMODITY, *Myers, J. M., Paper No. 8 (p. 26-29) in "Accelerating Innovation", Symposium, Nottingham, 1969. London, Aslib, 1970, 64 p.*

Information officers and librarians should be more concerned with their marketing functions and less with their production functions.

Information people could learn from the market researchers who are really just selling processed information, which, however, has been evaluated in terms of the manufacturing capabilities and marketing objectives of the company buying it.

Market researchers have also developed considerable skill in gathering and evaluating non-written information e. g. through telephone interviewing or questionnaire surveys.

Information people should take the responsibility for sorting out the profitable technological innovations and communicating the potential benefits to the decisionmakers.

46

A COST BENEFIT TECHNIQUE FOR R & D BASED INFORMATION, *Stern, B. T. U. S. Department of Health, Education & Welfare. Bethesda, Maryland, Leasco (ERIC reports), 1970, 7 p. (ED 054818).*

A cost benefit technique for a company information service may comprise the following five stages:

1. Objectives must be specified in terms of company strategy preferably by someone coming from another part of the organization for reasons of objectivity
2. Each objective must be analysed for the contributory activities and then the volume of work handled in a certain time must be measured and recorded. It is very important that the recording technique is carefully explained to the staff.
3. Volumes and times are translated into cash values with the assistance of the accountants
4. Users should be charged for what they receive in order to give the information service a useful measure of its performance
5. The cost benefit of the total information service may be expressed by the ratio of total sales to the total costs.

47

GOVERNMENT RESPONSIBILITIES IN INFORMATION FOR INDUSTRY, *OECD Seminar, Jouy-en-Josas, France, 1970. Paris, OECD, 1971, 110 p.*

Governments should

- continuously evaluate the needs of industry for both technological and non-technological information
- promote the use of information through information liaison officer services and the press
- coordinate initiatives in information and support services, such as information analysis centres, not provided by the private sector
- set up information "wholesale warehouses"
- promote the effective dissemination of the results of government R & D
- promote R & D on information transfer to industry and within the firm
- further the effective use of patent information.

48

THE IMPORTANCE OF INFORMATION TO INDUSTRY, *Hosking, H. W. Paper (p. 7-28) in "Information for Industry", Proceedings of Newcastle City Council Seminar, Newcastle, Australia, 1971. Newcastle City Council, 1972, 88 p. (ED 063011).*

Industrial users need five types of information services:

1. Management information services for operational decision making
2. Current awareness profiling for being kept up to date with new developments
3. Short term searching providing state of the art information on a specific topic
4. Long term retrospective searching needed in connection with the development of new products
5. Effective translation facilities.

The cost of maintaining an information service generally depends upon the breadth of coverage and the desired reliability of retrieval.

The cost of not knowing important facts becomes apparent only after the event if at all. Poor business performance can be rationalized as being due to many other causes.

49

NEW DIRECTIONS IN THE DESIGN AND OPERATION OF TECHNICAL INFORMATION CENTERS, *Holm, Bart E., Paper (p. 1-9) in Proceedings of the National Microfilm Association Annual Convention, vol. XXI, NMA, Silver Springs, Maryland, 1972.*

Successful information centers have the following characteristics:

- they realize the great variety in user needs paying particular attention to the technological gatekeepers;
- they are selective in acquisition knowing where to get the documents that they do not have;
- they are cost conscious and charge the user for the services he gets;
- they are mechanized where equipment can save money or provide better service;
- they use microforms in order to lower document costs and save space. They realize, however, that many users do not accept microforms for continuous reading;
- they are active services with extensive marketing and public relations functions.

50

LIAISON SERVICES, A KEY FACTOR IN NATIONAL INFORMATION POLICY, *Einhaus, Hans (Economic Commission for Europe (UN), Seminar on Technological Information Systems and Services for Innovation, Balaton-Füred, Hungary, 1973) Paper. ECE, Geneva, 1973, 9 p.*

National industrial information services which include among their staff industrial liaison officers are especially well-equipped to meet industry's need for rapid and precise answers to specific queries, and to provide assistance in the identification of problems and the formulation of requests for information.

To be effective in this role, industrial liaison services should operate independently from other information services in order to be able to evaluate their performance and to act as a spokesman for the needs of industrial users.

They should aim at full cost recovery and should cover all branches of industry allowing for a cross-feeding of technical and managerial experience.

SECTION III

Books and Reports

51

SCIENCE, GOVERNMENT, AND INFORMATION – THE RESPONSIBILITIES OF THE TECHNICAL COMMUNITY AND THE GOVERNMENT IN THE TRANSFER OF INFORMATION, *U. S. President's Science Advisory Committee; a report ("The Weinberg Report"). Washington, U. S. Govt. Print. Off., 1963, 52 p.*

Among the recommendations contained in the report may be mentioned:

- people working in R & D should consider information as a worthy and integral part of science
- authors should share the responsibility for retrieval with the professional documentalist
- scientists must be taught the modern techniques of handling information
- new ways of connecting the user with the information needed should be exploited, e. g. specialized information centers, central depositories, and mechanized processing.

52

DOES YOUR FIRM NEED ITS OWN INFORMATION SERVICE – AN ENQUIRY INTO THE ECONOMIC ADVANTAGES OF AN INFORMATION SERVICE IN SMALL AND MEDIUM-SIZED FIRMS, *OECD, Paris, 1963, 53 p.*

A central information service has the following advantages

- information work becomes the responsibility of at least one person who has no other duties
- work can be carried out regularly and methodically
- all the firm's interests can be served.

A decision of whether to establish an information service can be based upon measurements of the amount of information work already carried out in the firm.

As a rough guide an information service should be established if the firm

- employs more than 30 engineers and scientists
- is in a science-based industry
- is in a highly competitive industry
- is frequently developing new products.

53

A STUDY OF THE INFORMATION-GATHERING TECHNIQUES OF THE SMALL BUSINESSMAN (MANUFACTURING), *O'Brien, Richard E., Jefferson City, Missouri Division of Commerce and Industrial Development, 1964, 128 p.*

A survey of 147 small manufacturers showed that the most important objects of reading business publications were to get

- general background information
- information about new products
- new ideas about marketing

The "ideal" business publication should primarily be functional, ethical, and successful.

The major conclusion is: The short form of printed materials is by far the most important external source of new business information for the small manufacturer. All other channels of communication, even face-to-face contacts, are insignificant in comparison.

The most useful short form is the special report or bulletin followed by the trade article.

54

INFORMATION FOR INDUSTRY – A STUDY IN COMMUNICATIONS, *Grant, Joan. Pretoria, Council for Scientific and Industrial Research, 1964, 74 p. (CSIR research report 229).*

The research project involved interviews in 65 firms and a postal survey. Among the findings were:

- books, periodicals and other literature were mainly used for discovering new ideas
- in most of the firms the information used was only indirectly related to work
- daily operating details made up a large proportion of the demand for information
- only rarely was an information need classified as urgent
- it was particularly difficult to find information on new materials or processes.

The establishment of a technical information centre was recommended including a panel of experts from local firms.

55

FLOW OF SCIENTIFIC AND TECHNICAL INFORMATION: THE RESULTS OF A RECENT MAJOR INVESTIGATION, *Goodman, A. F., Huntington Beach, Calif., Douglas Missile & Space Systems Div., 1967, 59 p. (Douglas Paper No. 4516) (AD 657 558).*

An investigation comprising 1500 interviews with scientists and engineers gave the following findings

- oral information was wanted more than one out of three times, as was also the case with semiformal documentation. Journals and books were desired in only ten per cent of the cases.
- in eighty per cent of the cases the users first searched for information within the local work environment
- almost one half of the information was needed within 7 days
- over fifty per cent used the information center twice a month or more
- over two out of five users encountered difficulties in the utilization of the information system.

56

THE INFORMATION ANALYSIS CENTER; SEVEN BACKGROUND PAPERS, *Federal Council for Science and Technology, COSATI. Washington, 1969, 42 p. (COSATI 69-6).*

In his paper Alvin Weinberg stresses the compaction function of the information analysis center. The center must select and interpret and should, therefore, be manned by scientists who not only handle the documents but are able to evaluate the information and to find new correlations, thereby creating new science. The center is, therefore, a technical institute rather than a technical library.

The other papers emphasize the need for

- critical reviews
- critical data compilations
- quality control of literature and data of science and technology.

38

57

INFORMATION USED IN IDEA FORMULATION, *Myers, Sumner and Marquis, Donald G., Chapter 5 (p. 40-47) in "Successful Industrial Innovations – A study of Factors Underlying Innovation in Selected Firms" by same. Washington, National Science Foundation, U. S. Govt. Print. Off., 1969, 117 p. (NSF 69-17).*

In three fourths of the innovations studied, the firms had already formulated the concept and were working on the problem when a new information input solved the problem.

In one fourth of the cases the idea for the innovation was evoked by the information input. These information-evoked innovations showed the following characteristics:

1. They were more frequently initiated by technical than by market factors (contrasting strongly with the other innovations).
2. They were similar to the others with respect to the relative proportion of original and adopted items, and to cost of development.
3. The information input was frequently due to the initiative of others and involved personal contacts outside the firm.

58

SCIENTIFIC AND TECHNICAL INFORMATION IN CANADA – PART II – CHAPTER 2 – INDUSTRY, *("The Tyas Report"). Ottawa, Queen's Printer, 1969, 80 p. (Science Council of Canada, Special Study No. 8).*

Some of the information needs of industry identified by the study were

- referral services compiling directories of non-conventional sources of information
- technology-oriented information centres for particular industrial branches
- improved interlibrary loan services capable of delivering wanted documents within a few days
- more review articles and critical state-of-the-art reviews
- educational and interpretative services for companies with limited technical capabilities.

The report recommends that services should be partially paid for by industry in order to recover some of the costs and to evaluate user acceptance.

59

MANAGING THE KNOWLEDGE ORGANIZATION, *Zand, Dale E., Chapter 10 (p. 112-136) in "Preparing Tomorrow's Business Leaders Today", Drucker, Peter F. (ed.), Englewood Cliffs, N. J., Prentice-Hall, 1969, 290 p.*

Business enterprises are becoming knowledge-processing organizations characterized by an increasing ratio of knowledge workers to production workers. Management should be concerned about four processes:

1. Collecting and disseminating existing knowledge, the basic criterion being whether that knowledge reduces uncertainty or not.
2. Setting up a strategy for the acquisition of knowledge new to the firm but known to others and establishing a climate which will stimulate the creation of knowledge new to all.
3. Converting knowledge into profitable products and services aiming at connecting knowledge people with operating people.
4. Managing people who work with knowledge.

60

SCIENTIFIC AND TECHNICAL COMMUNICATION – A PRESSING NATIONAL PROBLEM AND RECOMMENDATIONS FOR ITS SOLUTION, *a report of SATCOM. Washington, Nat. Ac. of Sciences, 1969, 322 p. (Publication 1707).*

There is a pressing need for the establishment of "need-group services" for professional groups with common information requirements, by consolidating primary information and reprocessing the products of secondary services.

The committee recommends that

- private and governmental information activities should be coordinated
- the preparation of critical reviews should be furthered
- increased attention should be paid to information programmes for practitioners
- the use of information analysis centers should be stimulated
- ample opportunities for informal communication at scientific meetings should be provided
- interinstitutional visits and exchanges of personnel should be encouraged.

61

TECHNOLOGY AND INFORMATION TRANSFER – A SURVEY OF PRACTICE IN INDUSTRIAL ORGANIZATIONS, *Rosenbloom, Richard S. and Wolek, Francis W. Boston, Graduate School of Business Administration, Harvard University, 1970, 174 p.*

Some of the findings of this study, which comprised 3,200 scientists and engineers, are:

- Scientists use external sources far more than engineers do,
- In competence-oriented communication external sources are used much more than in problem-oriented communication,
- Information transfer resulted from specific search in almost half the instances,
- In nearly one third of the cases, the information was acquired because someone pointed it out,
- Interpersonal communication and local sources were used more frequently when the person considered himself inexperienced in the discipline.

62

THE MARKETING OF INFORMATION ANALYSIS CENTER PRODUCTS AND SERVICES, *Veazie, Walter H. and Connolly, Thomas F. Washington, American Society for Information Science, 1971, 28 p.*

The size, location, and characteristics of the user group must be considered when developing a successful marketing program.

The use of product differentiation should be considered. When there are many different consumer demands, even minor product variations may be important, and psychological differences may be of concern.

If dissemination direct to the user is chosen as distribution channel, the center should consider employing a marketing/sales manager.

During the period of introducing service charges, the centers must develop a marketing mix of products and services which can still be provided at no costs to users, while selling other output.

The pricing policy may comprise subscription, per-item purchase, hourly charges, membership, price differentiation, and premium charges for providing urgently needed information.

63

INFORMATION REQUIREMENTS FOR RESEARCH AND DEVELOPMENT, *EIRMA Working Group Report No. 8. Paris, European Industrial Research Management Association, 1973, 117 p.*

The report, based upon a survey of 65 science-based firms, recommends that the information staff

- should continuously be informed about new projects and changing needs
- should comprise personnel trained both in information science and the firm's main fields of activity
- should be given the opportunity of a career path within the information units in order to attract qualified personnel.

The information budget should be a minimum of 2% of the R & D budget for larger firms, and 7% for smaller firms.

The information staff should constitute at least 3% of the R & D staff for all sizes of firms.

The importance of the information unit as a company asset should be recognised by having it report to technical management rather than administrative services.

SECTION IV

Handbooks

64

SETTING UP YOUR COMPANY'S TECHNICAL INFORMATION SERVICE (WITH THIRTEEN CASE STUDIES), *OECD Handbook. Paris, OECD, 1965, 59 p.*

A handbook for managers who have decided to set up an information service, this publication provides them with the basic information necessary for the practical establishment of such a service.

The possibilities of inter-firm cooperation in the information field are illustrated.

Subsequent chapters deal with the functions and activities of the service, sources of information, the physical set-up, indexing, circulation of periodicals, etc.

Finally 13 case studies give a picture of how different organizations operate their technical information services.

65

THE INFORMATION CENTER; MANAGEMENT'S HIDDEN ASSET, *Meltzer, Morton F., New York, American Management Association, 1967, 160 p.*

An introductory book for managers.

Business management is seen as an interdisciplinary activity and the book opposes the usual distinction between the management information center and the technical information center.

A management and technical information center must, in addition to carrying out the functions of a special library, analyze and synthesize the information which falls in four categories: manpower, monetary, material, and marketing information.

Budget ratios and wage ranges are suggested. The return on investment is determined by measuring the performance against the following nine criteria: timeliness, completeness, accuracy, recall ratio, relevance, simplicity of operation, flexibility of system, operating costs, and above all the degree of user orientation.

66

HOW TO MANAGE YOUR INFORMATION, *Holm, Bart E. New York, Reinhold, 1968, 292 p.*

A practical guide for the professional information receiver telling him how to organize his information.

In separate chapters for engineers, chemists, physicists, architects, doctors, and archivists, advice is given on establishment and control of vocabulary, indexing, storage form, information sources, etc.

In additional chapters a survey is given on an introductory level of dissemination and storage of information, microforms, mechanized systems, and the handling of chemical structure information.

67

INTRODUCTION TO SCIENCE-INFORMATION WORK, *Hanson, C. W. London, Aslib, 1971, 199 p.*

A very useful, although introductory, handbook for information staff. The book concentrates upon real situations and the needs of practitioners to-day.

The author emphasizes the following views:

1. Science-information work is a form of scientific activity, depending greatly on librarianship but differing from it so much in viewpoint and scope that it cannot usefully be regarded as a branch of it.
2. Scientific knowledge should be predominant among science-information personnel.
3. The governing factor in science-information work is the need of the user for information, not the means adopted to provide it.
4. Science-information work is more than the aggregate of the varied knowledge and expertise employed: it involves purpose and viewpoint -- and the users.

68

INFORMATION UNITS IN SMALL PLANTS, *UNIDO, New York, United Nations, 1973, 48 p.*

An elementary guide in how to set up an information unit in a small or medium-sized manufacturing enterprise.

Particular attention is paid to such firms in developing countries, taking into account the possible lack of material, trained personnel and information resources.

Separate chapters deal with the dimensions and equipment of an information unit, the organization of the library, classification and dissemination, storage and retrieval, current awareness, and record keeping.

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OTHER PUBLICATIONS FROM FID/II

SYMPOSIUM ON COMMUNICATION OF SCIENTIFIC AND TECHNICAL INFORMATION FOR INDUSTRY (Rome, October 1969), Digested Report. FID publ. 463, 1970, 72 p.

NATIONAL TECHNICAL INFORMATION SERVICES, Worldwide Directory. Third edition. FID publ. 464, 1970, 61 p. (Fourth edition under preparation).

INDEX TO USERS STUDIES. FID publ. 515, 1974, 103 p.

TECHNICAL JOURNALS FOR INDUSTRY, National Lists of Selected Technical Journals. FID publ. 415, 1967 –
So far lists from 30 countries have been published (for details see FID News Bulletin).

All FID/II publications are available from
International Federation for Documentation (FID), 7 Hofweg, The Hague, Netherlands.

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